

THE GSAMS, RIVERS, INTERNET PROJECT USES TECHNOLOGY TO CONNECT GEORGIA STUDENTS AND TEACHERS TO THE ENVIRONMENT

Ginny King

AUTHOR: Instructional Technology Specialist, The Georgia Department of Education Technology Center at CSRA RESA, 4683 Augusta, Hwy. S. E., Dearing, Georgia 30808.

REFERENCE: *Proceedings of the 1997 Georgia Water Resources Conferences*, held March 20-22, 1997, at The University of Georgia, Kathryn J. Hatcher, Editor, Institute of Ecology, University of Georgia, Athens, Georgia.

Abstract. The Georgia Department of Education Technology Center at CSRA RESA (Central Savannah River Area Regional Educational Service Agency) provides technology support and training to nineteen local school districts in the Central Savannah River Area. In an effort to integrate technology into the curriculum while providing meaningful work for students, we have initiated an environmental education/technology project using Georgia rivers and water resources as the theme. Key partners in the project include the Georgia Department of Natural Resources (the Adopt-A-Stream Project), Fernbank Science Center, The Louisville Water Watch Project, *The Water Sourcebook* sponsored by the Georgia Water Wise Council, CSRA RESA, and The Georgia State Department of Education.

INTRODUCTION

The GSAMS (Georgia Statewide Academic and Medical System), Rivers, Internet Project (GRIP) utilizes four major components: Professional Development for K-12 teachers via the Internet, live teleconferences through GSAMS, stream investigations using the Georgia Adopt-A-Stream Project guidelines, and hands-on environmental education activities from *The Water Sourcebook*. The project also supports the goals of the Governor's River Care 2000 Project and The Georgia Initiative for Mathematics and Science (*The Frameworks*).

Teachers and students involved in this project will conduct regular visual surveys and monitor the water quality of a section of stream, river, wetland, or lake for one year. The participants will post the stream data on an Internet Bulletin Board sponsored by the University of Louisville. A WWW Home Page <http://168.23.240.15/grip/grip.htm> devoted to GRIP teachers and students will be maintained at the CSRA RESA Technology Center to highlight field trips, publish student reports, instruct teachers in data collecting and stream monitoring techniques, and link to similar projects throughout the nation and the world. The twenty-four teachers participating in this project will be selected from a cross-section of school systems within the CSRA.

Participants will begin their training at a one week summer camp at McDuffie Public Fishing Area operated by the Georgia DNR Wildlife Resources Division, a major partner in the project. There will be an emphasis on providing student-centered real-world work, hands-on activities from *The Water Sourcebook*,

QA/QC Adopt-A-Stream training, alternative and performance based assessments, and instructional technology applications.

As a result of this project, teachers will involve their students in inquiry-based learning, provide meaningful work for their students, collaborate with colleagues and community agencies, produce interdisciplinary units of instruction relating to real-world experiences, and use technology to enhance their teaching practices. Students and their families will become more involved with the environmental issues relating to their communities. They will have more confidence to address the environmental health problems confronting their communities.

Project evaluation will be on-going through e-mail correspondence and classroom observations. On-site evaluations will occur through classroom visits by a Master Teacher to video tape activities and to demonstrate technology integration. Participants will also compare their students standardized test scores before and after their participation in the project, emphasizing the process skills relating to science. Surveys will be used to evaluate the teachers' attitudes (pre and post) about environmental issues.

Through the GRIP initiative, students and teachers, partnered with scientists, will become engaged in meaningful science that will impact future decisions about our water resources in Georgia. Clean, safe water for individuals, communities, businesses, and industries is a priority in our state. Every living thing depends on water. The economy requires it.

RELATED PROJECTS

Similar projects involving hands-on environmental education, professional development, and technology have been successful throughout the country and the world recently. Elanora Heights Primary School in Sydney, New South Wales, Australia won an international technology award last year for their "Rivers and Lakes Project." The project involved more than 1000 children from 50 schools in 20 countries. School from around the world contributed questions about rivers and lakes. Each school based the answers to the questions on the river or lake that was closest to their school. They sent their findings via e-mail to Elanora Heights Primary School where they were posted on the WWW pages. <http://www.zip.com.au/~elanora/river.htm>

Seventh and eighth grade science students from Booker T. Washington Middle School #54, located on the Upper West Side

of Manhattan, used ClarisWorks and Micro Worlds computer software to conduct a study of water quality in the Hudson River. The students not only gained valuable technology skills, but they also learned valuable scientific and environmental information. (Mihich, 1996).

Sheila Florian Turkall initiated a "Student-Designed River Study" through Project Discovery, a program connecting Ohio teachers via a computer network. This interdisciplinary student-centered project had many positive outcomes. Ms. Turkall observed, "Our students saw the connections between science and math and social studies and language arts. They learned to reach beyond the walls of their school and the limits of their city. And they developed that yearning every teacher hopes for---they wanted to go back to the river to test more carefully and double-check their observations. But most of all, students designed a study of a familiar environment and rediscovered a vital, beautiful river in their own backyard" (Turkall, 1996).

The River Kids' Network in Georgia, a student oriented river awareness project, focuses on the pollution problems of the Chattahoochee River and other Georgia watersheds. Dee Shore, a teacher at Clubview Elementary in Columbus, began this project three years ago. Teachers and students participating in this project share data through the Internet, participate in Georgia's Adopt-A-Stream Project, and contribute to a bimonthly newsletter. (Dee Shore, Project Coordinator).

Earth Focus is an environmental education partnership between business, industry, school districts in southeastern Mississippi, and the University of Southern Mississippi's Center for Science Education. Initial sponsors include Mississippi Power and International Paper, with subsequent funding provided by a number of foundations. Project director is Dr. Iva Brown, assisted by doctoral student Joyce Roberts.

CONCLUSIONS

Georgia has taken the lead in educational technology. The GSAMS, Rivers, Internet Project takes advantage of the technology resources available to many of our school systems by integrating technology into the environmental education curriculum in the following ways:

- Through GSAMS (Georgia Statewide Academic and Medical System) teachers, students, scientists, and community agencies are able to have live teleconferences and share classroom activities and stream study field trips relating to the project;
- Access to the Internet to communicate with the instructor, the project scientists, and with one another through e-mail without leaving their classrooms;
- Through the Stream Watch Bulletin Board (provided by the University of Louisville), Georgia teachers involved in the project will be able to compare their stream site's Adopt-A-Stream data to all of the local, state, national, and international sites conducting similar studies;
- The Technology Center at CSRA RESA will provide training in the use of multi-media technologies and classroom application;

- Participants in the project will be required to attend a one week summer camp at McDuffie Public Fishing Area operated by the Georgia DNR Wildlife Resources Division, a major partner in the project.

Concern for the environment is increasing throughout our communities. Learning about the environment needs to go beyond 'knowing' about things to 'being' part of them. The overall emphasis on 'learning by doing' and sharing information promotes the belief that 'kids can make a difference.' The teachers in our project will have a unique opportunity to give their students a chance to make a difference, so *our focus in the GSAMS, Rivers, Internet Project is on the teachers.*

The benefits to the schools participating in GRIP through the involvement of these teachers are:

- computer networking to link vital community concerns with positive action
- cross-curriculum relevance to science, geography, biology, environmental studies, chemistry, and instructional technology
- hands-on activities that generate a high level of student interest and enthusiasm
- student practicals with a 'real world' purpose of great value to the wider community
- a problem solving approach that builds an atmosphere of openness and co-operation
- positive involvement in community issues that enhance student self esteem
- stronger links to the scientific community
- classroom and field activities that relate to wider community issues
- materials that educate students in responsible water management

The GSAMS, Rivers, Internet Project will enhance students' critical thinking, problem solving, and decision making skills. Teachers participating in the GRIP course will be prepared and equipped to provide meaningful work for their students, enriching their environmental education studies while incorporating technology into classroom activities across the curriculum.

ACKNOWLEDGMENTS

This work was partially funded by a grant from the Georgia Initiative for Mathematics and Science. Additional resources were provided by the Central Savannah River Area Regional Educational Service Agency.

LITERATURE CITED

- Barnes, B. E. And Cleaver, T.G. 1996. Online Water Science, *The Science Teacher*, March 1996.
- Mihich, O., 1996. Computing the Water Quality Index: The Hudson River Project, *Learning and Leading With Technology*, October 1996.
- Turkall, S.F., 1996. Student-Designed River Study, *Science Scope*, April 1996.